

(j) For the flow rate stability parameter, the test results for each of the three test samplers and for each of the 10 periods of 24 hours shall be calculated using the procedure in § 53.43(d). The candidate method passes the flow rate stability test if all of the

test results meet the specifications in table D-1.

(k) All test data and other documentation obtained from or pertinent to these tests shall be identified, dated, signed by the analyst performing the test, and submitted to EPA.

TABLE D-1—PERFORMANCE SPECIFICATIONS FOR PM₁₀ SAMPLERS

Performance parameter	Units	Specification
1. Sampling effectiveness:		
A. Liquid particles	Percent	Such that the expected mass concentration is within ± 10 percent of that predicted for the ideal sampler. Sampling effectiveness is no more than 5 percent above that obtained for liquid particles of same size.
B. Solid particles	Percent	
2. 50 Percent cutpoint	μm	10 ± 1.5 μm aerodynamic diameter.
3. Precision	$\mu\text{g}/\text{m}^3$ or percent	$5 \mu\text{g}/\text{m}^3$ or 7 percent for three collocated samplers.
4. Flow rate stability	Percent	Average flow rate over 24 hours within ± 5 percent of initial flow rate; all measured flow rates over 24 hours within ± 10 percent of initial flow rate.

§ 53.41 Test conditions.

(a) Set-up and start-up of all test samplers shall be in strict accordance with the operating instructions specified in the manual referred to in § 53.4(b)(3).

(b) If the internal surface or surfaces of the candidate method's sampler inlet on which the particles removed by the inlet are collected is a dry surface (i.e., not normally coated with oil or grease), those surfaces shall be cleaned prior to conducting wind tunnel tests with solid particles.

(c) Once the test sampler or samplers have been set up and the performance tests started, manual adjustment shall be permitted only between test points for the sampling effectiveness and 50 percent cutpoint tests or between test days for the precision and flow rate stability tests. The manual adjustments and any periodic maintenance shall be limited to only those procedures prescribed in the manual referred to in § 53.4(b)(3). The submitted records shall show clearly when any manual adjustment or periodic maintenance was made and shall describe the operations performed.

(d) If a test sampler malfunctions during any of the sampling effectiveness and 50 percent cutpoint tests, that test run shall be repeated. If a test sampler malfunctions during any of the precision and flow rate stability tests, that day's test shall be repeated. A detailed explanation of all malfunctions

and the remedial actions taken shall be submitted to EPA with the application.

§ 53.42 Generation of test atmospheres for wind tunnel tests.

(a) A vibrating orifice aerosol generator shall be used to produce monodispersed liquid particles of oleic acid tagged with uranine dye and monodispersed solid particles of ammonium fluorescein with equivalent aerodynamic diameters as specified in table D-2. The geometric standard deviation for each particle size and type generated shall not exceed 1.1 (for primary particles) and the proportion of multiplets (doublets and triplets) in a test particle atmosphere shall not exceed 10 percent. The particle delivery system shall consist of a blower system and a wind tunnel having a test section of sufficiently large cross-sectional area such that the test sampler, or portion thereof, as installed in the test section for testing, blocks no more than 15 percent of that area. To be acceptable, the blower system must be capable of achieving uniform wind speeds at the speeds specified in table D-2.

TABLE D-2—PARTICLE SIZES AND WIND SPEEDS FOR SAMPLING EFFECTIVENESS TESTS

Particle size (μm) ^a	Wind speed (km/hr)		
	2	8	24
3 ± 0.5	/	/	/
5 ± 0.5	/	/	/
7 ± 0.5	/	/	/